



SOIL BORING AND WELL INSTALLATION AND VISUAL CLASSIFICATION LOG

CTO: _____

Bldg./Site: _____

Project Name: Lusher St.

Boring Number: <u>SP GW-09</u>	Date Started: <u>1-12-17</u>
Drilling Method: (Circle one) HSA Continuous Core <u>Direct-Push</u> /Hand Auger/ Air Rotary/Mud Rotary/Dual Tube Percussion/Sonic/Vacuum	Date Completed: <u>1-12-17</u>
Outer Diameter of Boring: <u>2 in</u>	Logged By: <u>SS + JM</u>
Inner Diameter of Well Casing:	Drilling Subcontractor: <u>Stearns</u>
Depth to Water (feet bgs): <u>16.5</u>	Driller: <u>Tom + Gary</u>
Location Sketch:	

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. Utility Type Diameter	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1230	5	5ft	3.5ft			6 in fill, leaves, roots, grass Fine sand w/ trace sm. gravel, roots present, reddish brown, moist	SP		
1235	10	5ft	3ft			7 ft med. grained sand, poorly graded, tan 8 ft moist 8.5 ft Fine sand, reddish brown, moist, poorly graded	SP SP		
1240	15	5ft	5ft			med sand w/ some interbedded fine sands, little gravel, tan moist	SP		
1245	16.5	5ft	3.5ft						



SOIL BORING AND WELL INSTALLATION AND VISUAL CLASSIFICATION LOG

CTO: _____

Bldg./Site: _____

Project Name: _____

Boring Number: <u>SP-GW-10</u>	Date Started: <u>1/12/17</u>
Drilling Method: (Circle one) HSA Continuous Core/ <u>Direct-Push</u> /Hand Auger/ Air Rotary/Mud Rotary/Dual Tube Percussion/Sonic/Vacuum	Date Completed: <u>1/12/17</u>
Outer Diameter of Boring: <u>2</u>	Logged By: <u>JM</u>
Inner Diameter of Well Casing:	Drilling Subcontractor: <u>Stearns</u>
Depth to Water (feet bgs): <u>16</u>	Driller: <u>Tony Gary</u>
Location Sketch:	

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. Utility Type Diameter	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1500			4'			1 ft dk brown top soil w roots + grass			
	5		3.5"			4" lens dk brown fine sand fine sand, red brown, moist trace small gravel poorly graded	SP		
1505	10					8 ft fine-medium sand w trace small gravel light brown-tan moist poorly graded	SW		
1510	15					12 ft 1 inch fine sand, dk brown/black lens medium to coarse sand w few small gravel moist light tan	SW		
	16 ft								



SOIL BORING AND WELL INSTALLATION AND VISUAL CLASSIFICATION LOG

CTO: Bldg./Site: Project Name: LUSHER ST

Boring Number: <u>SP-GW-11</u>	Date Started: <u>11/13/17</u>
Drilling Method: (Circle one) HSA Continuous Core/ <u>Direct-Push</u> /Hand Auger/ Air Rotary/Mud Rotary/Dual Tube Percussion/Sonic/Vacuum	Date Completed: <u>11/13/17</u>
Outer Diameter of Boring:	Logged By: <u>CM + JM</u>
Inner Diameter of Well Casing:	Drilling Subcontractor: <u>STEBENS</u>
Depth to Water (feet bgs): <u>15 ft</u>	Driller: <u>TOM + GRAY</u>
Location Sketch:	

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. Utility Type Diameter	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
11.05	5'	THL 5' 4'	1 80%			8" Top soil w roots + grass			
						Fine sand, dark yellowish brown, moist trace small gravel, poorly graded	SP		
11.10	10'	THL 5' 3.5'	2 70%			7.5' Medium sand, 10YR 6/3 (pale brown), moist Few small gravel. Poorly-graded.	SP		
11.15	15'	THL 5' 4.5'	3 90%			11.5' Fine sand, dark yellowish brown, moist, poorly graded	SP		
						12' Coarse sand, 10YR 6/4 (light brown), moist Little small gravel, well-graded	SP		
						15' ▴			



SOIL BORING AND WELL INSTALLATION AND VISUAL CLASSIFICATION LOG

CTO: _____
Bldg./Site: _____
Project Name: Lusher St

Boring Number: <u>8P-GW-12</u>	Date Started: <u>4-24-17</u>
Drilling Method: (Circle one) HSA Continuous Core/ <u>Direct-Push</u> /Hand Auger/ Air Rotary/Mud Rotary/Dual Tube Percussion/Sonic/Vacuum	Date Completed: <u>4-24-17</u>
Outer Diameter of Boring: <u>12.5</u>	Logged By: <u>SS</u>
Inner Diameter of Well Casing: <u>1.5 inch</u>	Drilling Subcontractor: <u>Stearns</u>
Depth to Water (feet bgs): <u>11.5ft</u>	Driller: <u>Tom</u>
Location Sketch:	

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. Utility Type Diameter	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
		1	80%			6-11 feet loose to brown, fine-grained, dry 1-2 ft gray-brown, dry, poorly graded 2 ft dark brown, trace gravelly, dry, fine-med sand light brown, fine-med sand, poorly graded, dry	SP SP SP		0.0 0.0 0.0
	5 ft	2	100%				SP		0.0
	10 ft	3	80%			11 ft medium-coarse w/ few gravel 11.5 ft well-graded, light brown, wet	SW		0.0
	15 ft					EOB = 15'			



SOIL BORING AND WELL INSTALLATION AND VISUAL CLASSIFICATION LOG

CTO: _____

Bldg./Site: _____

Project Name: Lusher St

Boring Number: SP-GW-13	Date Started: 4-25-17
Drilling Method: (Circle one) HSA Continuous Core/Direct-Push/Hand Auger/ Air Rotary/Mud Rotary/Dual Tube Percussion/Sonic/Vacuum	Date Completed: 4-25-17
Outer Diameter of Boring:	Logged By: SS
Inner Diameter of Well Casing: 1.5 inches	Drilling Subcontractor: Stearns
Depth to Water (feet bgs): 14.5 ft	Driller: Tom
	Location Sketch:

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. Utility Type Diameter	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
0755	— — — — — 5	1	80%			6 in - top soil, roots, grey lt. brown, dry 1 ft - fine sand, light brown, few roots, poorly graded 2 ft - dark brown, trace gravel, poorly sorted/graded light brown, fine sand w/few med sand, poorly sorted/graded	Fill SP SP		0.0 0.0 0.0
0800	— — — — 10	2	80%				SP		0.0
0805	— — — — 15	3	80%			12 Ft - tan, fine-med grained, poorly sorted, trace gravel 14 Ft - tan, med grained, few gravel, well sorted/graded 14.5 ▼ - micaceous	SP SW		0.0 0.0



SOIL BORING AND WELL INSTALLATION AND VISUAL CLASSIFICATION LOG

CTO: _____

Bldg./Site: _____

Project Name: Lusker St

Boring Number: <u>SP-GW-14</u>	Date Started: <u>4-25-17</u>
Drilling Method: (Circle one) HSA Continuous Core <u>Direct-Push</u> /Hand Auger/ Air Rotary/Mud Rotary/Dual Tube Percussion/Sonic/Vacuum	Date Completed: <u>4-25-17</u>
Outer Diameter of Boring:	Logged By: <u>SS</u>
Inner Diameter of Well Casing: <u>1.5 inches</u>	Drilling Subcontractor: <u>Stevens</u>
Depth to Water (feet bgs): <u>15.5 ft</u>	Driller: <u>Tom</u>
Location Sketch:	

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. Utility Type Diameter	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1245	1	80%				6.0 ft - dark brown, roots & grass 16.0 ft - tan, very fine sand, poorly graded, dry Reddish brown, trace small gravel, poorly graded, moist fine sand	SP		0.0
	5					5 ft -			0.0
1250	2	40%				no recovery			
	10					8 ft - Reddish brown, trace small gravel, poorly graded fine sand	SP		0.0
						9.5 ft - tan, fine sand w/ trace sm. gravel, poorly graded	SP		0.0
						11 ft - Grey, very fine sand, w/ trace lg gravel poorly graded	SP		0.0
1255	3	90%				11.5 ft - tan, med-coarse sand w/ trace gravel, well graded	SW		0.0
1300	15	80%				15.5 ft -			



**SOIL BORING AND WELL INSTALLATION
AND VISUAL CLASSIFICATION LOG**

CTO: _____

Bldg./Site: _____

Project Name: _____

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. utility type dia	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1300	20	4	80			Same as above EOB-20ft	SW		0.0



SOIL BORING AND WELL INSTALLATION AND VISUAL CLASSIFICATION LOG

CTO: _____

Bldg./Site: _____

Project Name: Lusher St

Boring Number: <u>SP-GW-15</u>	Date Started: <u>4-25-17</u>
Drilling Method: (Circle one) HSA Continuous Core <u>Direct-Push</u> /Hand Auger/ Air Rotary/Mud Rotary/Dual Tube Percussion/Sonic/Vacuum	Date Completed: _____
Outer Diameter of Boring: _____	Logged By: <u>SS</u>
Inner Diameter of Well Casing: <u>1.5 cm</u>	Drilling Subcontractor: <u>Stearns</u>
Depth to Water (feet bgs): _____	Driller: <u>Tom</u>
Location Sketch:	

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. Utility Type Diameter	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1545	5	1	75%			6.0 BK brown-black, gravel, fill reddish-brown, fine sand, poorly graded	SP		0.0
1550	10	2	80%			6.5 ft 7 ft Dark grey fill material w/ little gravel tan, fine sand w/ trace coarse sand, poorly sorted	Fill SP		0.0 0.0
1555	15	3	80%			9.5 ft 10 ft fine sand w/ little coarse sand & gravel, well sorted, dk brown 11 ft reddish-brown fine sand w/ trace coarse grains, poorly sorted	SW SP		0.0 0.0
1600		4	80%			Coarse sand w/ few gravel, well sorted, tan, dk black lens w/ gravel at ~ 11 ft 15.5 ft ▼	SW		0.0



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CTO: _____

Bldg./Site: _____

Project Name: _____

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. utility type dia	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
1710	16	4	90%			reddish brown sand fine sand w/ trace gravel, poorly graded	SP		0.0
	19.5					tan, coarse sand w/ gravel + small rocks, well graded, wet	SW		0.0
	20					tan clay, dry, stiff, few sm. gravel & few pebbles	CL		0.0
	20	5	100%			Sandy clay, dry, grey, few medium gravel	CL		0.0
	23					Brown sand w/ few sm.-med gravel, wet, well graded	SW		0.0
	25					EOB - 25'			

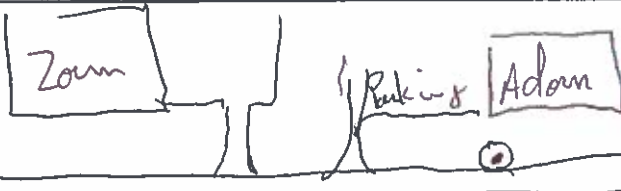


SOIL BORING AND WELL INSTALLATION AND VISUAL CLASSIFICATION LOG

CTO:

Bldg./Site:

Project Name: WASH SR

Boring Number: <u>SP-GW-16</u>	Date Started: <u>4-26-17</u>
Drilling Method: (Circle one) HSA Continuous Core <u>Direct-Push</u> Hand Auger/ Air Rotary/Mud Rotary/Dual Tube Percussion/Sonic/Vacuum	Date Completed: <u> </u>
Outer Diameter of Boring: <u> </u>	Logged By: <u>T. KOACH</u>
Inner Diameter of Well Casing: <u> </u>	Drilling Subcontractor: <u>Stearns</u>
Depth to Water (feet bgs): <u>15.5'</u>	Driller: <u>Tom Ullrich, Mike</u>
Location Sketch: 	

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. Utility Type Diameter	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
0815			<u>80%</u>			Reddish Brown fine-med SAND, trace small gravel, dry	SP		0.0
5			<u>70%</u>			Same as above, dry-moist	SP		0.0
10			<u>60%</u>			Same as above, moist	SP		
						Brown med-coarse SAND, w/ some fine-med gravel, pebbles & cobbles, moist	SP		0.0
15			<u>80%</u>		<u>✓</u>	<u>SHOULDER</u> Reddish Brown fine Sand, wet	SW		0.0



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CTO: _____

Bldg./Site: _____

Project Name: _____

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. utility type dia	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
	20					Brown med-coarse Sand w/ fine-med gravel, trace pebbles, Saturated	SP		0.0
						EOB = 20'			



SOIL BORING AND WELL INSTALLATION AND VISUAL CLASSIFICATION LOG

CTO: _____
Bldg./Site: _____
Project Name: LOSHER ST


Boring Number: <u>SP-GW-17</u>	Date Started: <u>4-26-17</u>
Drilling Method: (Circle one) HSA Continuous Core/ <u>Direct-Push</u> / Hand Auger/ Air Rotary/Mud Rotary/Dual Tube Percussion/Sonic/Vacuum	Date Completed: _____
Outer Diameter of Boring: _____	Logged By: <u>T Koach</u>
Inner Diameter of Well Casing: _____	Drilling Subcontractor: <u>Stearns</u>
Depth to Water (feet bgs): _____	Driller: <u>Tom Ulrich</u>
Location Sketch: <u>LC1 Plant 58</u> <u>MISHAWAKA Rd</u> <u>under main Express</u> NT	

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. Utility Type Diameter	Description	USCS Soil Symbol	Well Construction	OVM (ppm)
	5		80%			Light - Grayish brown silty sand w/ to small gravel, dry	FL		0.0
						Brown - reddish brown silty fine sand, to fine - med gravel, dry	SP		
						Same as above			
	10		80%			grayish brown fine - med sand w/ some fine - med gravel, dry - moist	SP		0.0
						Same as above			
	15		100%			Tan fine - med sand, to fine gravel	SP		0.0
						Brown fine - med sand, to fine gravel	SP		0.0
						EOB = 15'			
						14.5'			



SOIL BORING AND WELL INSTALLATION AND VISUAL CLASSIFICATION LOG

CTO: _____
Bldg./Site: _____
Project Name: Brush Street

Boring Number: <u>SP-GW-18</u>	Date Started: <u>4-26-17</u>
Drilling Method: (Circle one) HSA Continuous Core <u>Direct-Push</u> / Hand Auger / Air Rotary / Mud Rotary / Dual Tube Percussion / Sonic / Vacuum	Date Completed: _____
Outer Diameter of Boring: _____	Logged By: <u>T. Kozach</u>
Inner Diameter of Well Casing: _____	Drilling Subcontractor: <u>Stearns</u>
Depth to Water (feet bgs): _____	Driller: <u>Tom Ulrich</u>
Location Sketch: 	

Time	Depth (feet bgs)	Drive Interval	Recovered Interval	Sample ID	Blow Count (per 6 inches) / V.B. Utility Type Diameter	Description	USCS Soil Symbol	Well Construction	OWM (ppm)
1554			70%			No Recovery Grey silty sand & gravel fill, dry Black - dk brown silty sand fill w/ med gravel, dry Reddish brown fine - med SAND, to fine gravel dry			0.0
	5		80%			Same as above; 3" seam of Grey med SAND & GRAVEL, dry Brown fine - med SAND w/ some fine gravel, moist			0.0
	10		100%			Same as above, wet - saturated at $\approx 14.5'$			0.0
	15					EOB = 15' bgs			

APPENDIX C

FIELD PHOTOGRAPHS

Grab Groundwater Sampling Photos
SP-GW-01



Grab Groundwater Sampling Photos
SP-GW-02



Grab Groundwater Sampling Photos
SP-GW-03

